Amendments to the Claims

Please amend Claims 1-3 and 22. Please cancel claim 21 without prejudice. The Claim Listing below will replace all prior versions of the claims in the application:

Claim Listing

1. (Currently amended) In a system for interconnecting an end user machine with a server for the transmission of data:

first and second base stations connected to the server;

a subscriber unit connected to the end user machine and normally using a first wireless path with the first base station, the subscriber unit using a second wireless transmission path with the second base station when handed off from the first station to the second base station;

means associated with the subscriber unit for initiating a first control signal signifying the start of a handoff and a second control signal signifying the completion of the handoff;

means for establishing a single connection governed by TCP protocols between the end user machine and the server, the receiving of data packets from the server by the end user machine causing the generation of first actual acknowledgment signals each of which ~~contain~~ contains a first portion indicative of a packet received by the end user machine and a second portion indicative of the size of a receiving window of the end user machine;

first intercepting means associated with the first base station for intercepting one or more successive first actual acknowledgment signals;

means coupled to the first intercepting means and responsive to the first control signal for generating a first simulated acknowledgment signal whose first portion matches that of ~~the then intercepted~~ an intercepted first actual acknowledgment signal and whose second portion contains a value that indicates data transfer on the connection governed by TCP protocols is paused; and

means for applying the first simulated acknowledgment signal to the server.

2. (Currently amended) A system as defined in claim 1, in which the system further comprises, in combination, means coupled to a first monitoring means for storing [[a]] the ~~then intercepted~~ intercepted first actual acknowledgment signal, means responsive to the second control signal for retrieving the stored first actual acknowledgment signal, and means for applying the retrieved first actual acknowledgment signal to the server.

3. (Currently amended) In a system for interconnecting an end user machine with a server for the transmission of data:

first and second base stations connected to the server;

a subscriber unit connected to the end user machine and normally ~~defining~~ using a first wireless path with the first base station, the subscriber unit ~~defining~~ using a second wireless transmission path with the second base station when handed off from the first station to the second base station;

means associated with the subscriber unit for initiating a first control signal signifying the start of a handoff and a second control signal signifying the completion of the handoff;

means for establishing a single ~~communication~~ connection governed by TCP protocols between the end user machine and the server, the receiving of data packets from the server by the end user machine causing the generation of [[a]] first actual acknowledgment ~~signal~~ signals each of which contains a first portion indicative of a packet received by the end user machine and a second portion indicative of the size of a receiving window of the end user machine;

first intercepting means associated with the first base station for intercepting one or more successive first actual acknowledgment signals;

means coupled to the first intercepting means and responsive to the first control signal for generating a first simulated acknowledgment signal whose first portion matches that of ~~the then intercepted~~ an intercepted first actual acknowledgment signal and whose second portion contains a value that indicates data transfer on the connection governed by TCP protocols is paused;

means for applying the first simulated acknowledgment signal to the server;

the single communication connection being effective, in response to a succession of data packets received from the end user machine by the server, to cause the generation of second actual acknowledgment signals each of which contains a first portion indicative of a packet received by the server and a second portion indicative of the size of a receiving window of the server; and in which the system further comprises, in combination, second intercepting means associated with the subscriber unit for intercepting successive second actual acknowledgment signals from the end user machine, means coupled to the second intercepting means and responsive to the first control signal for generating a second simulated acknowledgment signal whose first portion matches that of the intercepted second actual acknowledgment signal from the server and whose second portion contains a value that indicates data transfer on the connection is paused, and means for applying the second simulated acknowledgment signal to the end user machine.

4. (Previously presented) In a gateway unit for controlling data flow in the event of a handoff in a mobile data packet communication system that transmits a succession of data packets from a first machine to a second machine via a TCP connection established between the first machine and the second machine in accordance with TCP protocols, the receipt by the second machine of successive bytes in each of the succession of data packets from the first machine causing the generation of actual acknowledgment signals each of which contains a first portion indicative of a packet received by the second machine and a second portion indicative of the size of a receiving window of the second machine:

means for intercepting successive actual acknowledgment signals from the second machine;

means responsive to the start of handoff for generating a simulated acknowledgment signal whose first portion matches that of a then-intercepted actual acknowledgment signal from the second machine and whose second portion contains a value that indicates data transfer on the TCP connection is paused; and

first means for forwarding the simulated acknowledgment signal to the first machine.

5. (Original) A gateway unit as defined in claim 4, further comprising means for storing the then-intercepted actual acknowledgment signal, and second means responsive to the completion of handoff for forwarding the stored actual acknowledgment signal to the first machine.

6. (Previously presented) In a gateway unit for controlling data flow in the event of a handoff in a mobile data packet communication system that transmits a succession of data packets from a first machine to a second machine via a TCP connection established between the first machine and the second machine in accordance with TCP protocols, the receipt by the second machine of successive bytes in each of a succession of data packets from the first machine causing the generation of actual acknowledgment signals each of which contains a first portion indicative of packet received by the second machine and a second portion indicative of the size of a receiving window of the second machine:

means for intercepting successive actual acknowledgment signals from the second machine;

means coupled to the intercepting means and responsive to the start of the handoff for generating a simulated acknowledgment signal whose first portion matches that of the then-intercepted actual acknowledgment signal from the second machine and whose second portion contains a value that indicates data transfer on the TCP connection is paused;

means coupled to the intercepting means for storing the then-intercepted actual acknowledgment signal;

means responsive to the completion of the handoff for retrieving the stored actual acknowledgment signal; and

means for applying the simulated acknowledgment signal and the retrieved actual acknowledgment signal to the first machine.

7. (Previously presented) For use in a wireless communication system adapted to transmit data packets from a first machine to a second machine in accordance with TCP protocols via a TCP connection established between the first machine and the second machine, the receipt by the second machine of successive bytes in a succession of data packets from the first machine causing the generation of actual acknowledgment signals each of which contains a first portion indicative of a packet received by the second machine and a second portion indicative of the size of a receiving window of the second machine, a method for controlling data packet transmission in the event of a handoff in such system, which comprises the steps of:

intercepting successive actual acknowledgment signals from the second machine;

generating, at the start of handoff, a simulated acknowledgment signal whose first portion matches that of the then-intercepted actual acknowledgment signal and whose second portion contains a value that indicates data transfer on the TCP connection is paused;

storing a copy of the then-intercepted actual acknowledgment signal; sending such simulated acknowledgment signal to the first machine; and

sending the stored copy of the actual acknowledgment signal to the first machine at the completion of handoff.

8. (Previously presented) For use in a wireless communication system adapted to transmit data packets from a first machine to a second machine in accordance with TCP protocols via a TCP connection established between the first machine and the second machine, the receipt by the second machine of successive bytes in a succession of data packets from the first machine causing the generation of actual acknowledgment signals each of which contains a first portion indicative of a corresponding byte received by the second machine and a second portion indicative of the size of a receiving window of the second machine, a method for controlling data packet transmission in the event of a handoff in such system, which comprises the steps of:

intercepting successive actual acknowledgment signals;

storing the then-intercepted actual acknowledgment signal;

detecting the start of handoff;

generating, when the start of handoff is detected, a simulated acknowledgment signal whose first portion matches that of the then-intercepted actual acknowledgment signal and whose second portion contains a value that indicates data transfer on the TCP connection used to transfer packets between the first machine and the second machine is paused;

applying the simulated acknowledgment signal to the first machine;

detecting the completion of handoff;

retrieving the stored actual acknowledgment signal when the completion of handoff is detected; and

applying the retrieved actual acknowledgment signal to the first machine.

9. (Previously presented) For use in a wireless communication system adapted to transmit data packets from a first machine to a second machine in accordance with TCP protocols via a TCP connection established between the first machine and the second machine, the receipt by the second machine of a succession of data packets from the first machine causing the generation of actual acknowledgment signals each of which contains a first portion indicative of a packet received by the second machine and a second portion indicative of the size of a receiving window of the second machine, a method for controlling data packet transmission in the event of a handoff in such system, which comprises the steps of:

intercepting successive actual acknowledgment signals;

storing the then-intercepted actual acknowledgment signal;

forwarding, to the first machine, a copy of the actual acknowledgment signal next preceding the stored acknowledgment signal;

detecting the start of handoff;

generating, when the start of handoff is detected, a simulated acknowledgment signal whose first portion matches that of the then-intercepted actual acknowledgment signal and whose second portion contains a value that indicates data transfer on the TCP

connection used to transfer packets between the first machine and the second machine is paused;

forwarding the simulated acknowledgment signal to the first machine;

detecting the completion of handoff;

retrieving the stored actual acknowledgment signal when the completion of handoff is detected; and

forwarding the retrieved actual acknowledgment signal to the first machine.

10. (Previously presented) An apparatus for managing a handoff of a wireless path from the first base station to a second base station, the wireless path carrying a communication connection between a first device and a second device, the apparatus comprising:

a sensing device configured to intercept packets from the first device that are destined for the second device; and

a handoff optimizer configured to, at the beginning of the handoff, (i) generate a simulated acknowledgment signal containing a window size value indicating that data transfer on the communication connection is paused and (ii) forward the generated acknowledgment signal to the second device.

11. (Previously presented) An apparatus as defined in claim 10 wherein the first device is an end user machine and the second device is a server.

12. (Previously presented) An apparatus as defined in claim 10 wherein the communication connection is a Transmission Control Protocol (TCP) connection.

13. (Previously presented) An apparatus as defined in claim 10 wherein the window size value is zero.

14. (Previously presented) An apparatus as defined in claim 10 further comprising:

a filter configured to filter out packets that are not acknowledgment signals from the first device and forward the filtered out packets to the second device.

15. (Previously presented) An apparatus as defined in claim 10 further comprising:
a handoff start detector configured to detect the beginning of the handoff.

16. (Previously presented) An apparatus as defined in claim 10 further comprising:
a handoff complete detector configured to detect an end of the handoff.

17. (Previously presented) An apparatus as defined in claim 10 further comprising:
a timer configured to time out prior to a normal timeout associated with the communication connection.

18. (Previously presented) An apparatus as defined in claim 17 wherein the handoff optimizer is further configured to generate and forward the simulated acknowledgment signal after the timer has timed out.

19. (Previously presented) An apparatus as defined in claim 10 further comprising:
a database configured to store copies of intercepted acknowledgment signals.

20. (Previously presented) An apparatus as defined in claim 19 wherein the handoff optimizer is further configured to, at the end of the handoff, (i) retrieve an intercepted acknowledgment signal from the database and (ii) forward the retrieved acknowledgment signal to the server.

21. (Canceled).

22. (Currently amended) [[As]] A system as defined in claim 3 wherein the value that indicates data transfer on the connection is paused is zero.